



Gummosis of Citrus and Its Control Strategies

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Gummosis, primarily caused by species of the oomycete *Phytophthora* (most commonly *P. citrophthora* and *P. nicotianae*), is one of the most destructive diseases affecting citrus orchards worldwide. It is often referred to as 'foot rot' when it affects the base of the trunk or 'brown rot' when it affects the fruit. The disease leads to the degradation of the bark and cambium, eventually girdling the tree and causing significant yield decline or death.

Symptoms and Identification

- The disease is easily identified by the following clinical signs:
- Gum Exudation: Profuse oozing of amber-colored gum from the bark near the soil line.
- Bark Cracking: The bark becomes dark and water-soaked, eventually cracking and peeling away in longitudinal strips.
- Vein Chlorosis: Yellowing of the midribs and main veins of leaves, indicating a disruption in nutrient transport.
- Dieback: Gradual thinning of the canopy and death of small twigs.

Control and Management Strategies

Effective management of citrus gummosis requires an Integrated Pest Management (IPM) strategy that combines preventative cultural practices with curative chemical treatments.

1. Cultural Control (Prevention)

- Resistant Rootstocks: Planting varieties like Trifoliate orange, Swingle citrumelo, or Carrizo citrange which have natural resistance.
- Proper Planting Height: Ensuring the bud union is at least 15–20 cm above the soil surface to keep susceptible scion wood away from soil-borne pathogens.
- Water Management: Improving soil drainage and avoiding direct contact of irrigation water with the tree trunk.
- Injury Prevention: Avoiding wounds to the trunk during cultivation, as these serve as entry points for the pathogen.

2. Chemical Control

- Bordeaux Paste: Scraping away infected bark and applying a thick paste of copper sulfate and lime (Bordeaux paste) to the wound.
- Systemic Fungicides: Application of Fosetyl-Al (Aliette) or Metalaxyl-M (Ridomil) as foliar sprays or soil drenches.
- Paint Treatments: Painting the trunk (up to 2 feet) with a fungicide-treated water-based paint for long-term protection.

3. Biological Control

The use of antagonistic microorganisms like *Trichoderma viride* or *Pseudomonas fluorescens* as soil amendments can help suppress *Phytophthora* populations in the rhizosphere.

Conclusion

While Gummosis is a formidable disease, it can be effectively managed. The most critical factor is prevention through the use of resistant rootstocks and sound horticultural practices. Early detection and prompt chemical treatment of lesions can save infected trees and maintain the economic viability of the citrus grove.